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AWARENESS OF DIABETES IN THE RURAL POPULATION.

General Medicine

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ABSTRACT

Background: India has the largest number of patients with diabetes in the world, accounting for more than 50 million subjects. There are limited studies on diabetes awareness, attitude, and prevalence in rural community.

Materials and Methods: A community-based survey with recording of blood pressure, fasting & postprandial blood glucose, waist circumference, and height was conducted among the residents of village; Nava Nagna of Jamnagar district of Gujarat state. A door-to-door survey was conducted and members above the age of 25 years from each household were considered eligible to participate.

Results and Conclusion: The awareness of diabetes in the study population was found to be as low as 21%. Majority of subjects (58%) had a normal BMI and adequate physical activity (88%). The prevalence of smoking (72%) was found to be very high. Blood glucose screening revealed that 13% had impaired fasting glucose and 6% had impaired glucose tolerance.

KEYWORDS

Gujarat, awareness, diabetes, rural.

INTRODUCTION

The worldwide prevalence of diabetes mellitus has reached epidemic proportions over the past two decades. The World Health Organization (WHO) predicts that developing countries will bear the brunt of this epidemic in the 21st century. Currently, more than 70% of people with diabetes live in low- and middle-income countries. Today, India has about 50 million patients with diabetes and this number is projected to increase to 79.4 million by the year 2030.[1] Prevalence studies have previously estimated that around 6–12% of urban and 2–3% of rural Indians have diabetes.[2,3]

India is a country with diverse social, economic, cultural, and educational patterns. A large proportion of the population of India is from the rural sector. A number of these regions are still underdeveloped and people have varied beliefs and misconceptions regarding disease.[4] Not much is known about the level of awareness and prevalence of diabetes in developing countries like India.[5] There is very little epidemiological data available from some regions of India. Some region primarily consists of a rural illiterate population, having low educational status with around 22% of males and 42% of females being illiterate.[6]The terrain and climatic conditions in this region make these health care institutions physically difficult to access. The average time taken to reach a doctor in these areas is about half an hour and may range anywhere between 5 minutes and 3 hours.

MATERIALS AND METHODS

Study area and population

The study covered the areas of village named Nava Nagna in Jamnagar district in the state of Gujarat. Study design, instrument, and data collection. The WHO has recommended surveillance of common risk factors with a "stepwise" approach, which uses standardized instruments and protocols for collecting, analyzing, and monitoring trends for risk factors within and across countries.[7] The STEPS approach focuses on the collection of data based on key risk, which includes the following sequential phases: collection of information on socio-demographic variables, and behavioral risk factors, i.e., tobacco use, alcohol use, physical inactivity, diet, and related factors using a questionnaire (STEP 1); obtaining clinical measurements such as weight, height, waist circumference, and blood pressure using standardized protocols and instruments (STEP 2); and acquiring biochemical measurements such as serum total cholesterol, high density lipoprotein (HDL) cholesterol, blood glucose, and triglycerides using fasting blood samples (STEP 3). The present study was undertaken to assess the burden of risk factors for diabetes and estimate the awareness and prevalence of diabetes.

Definitions used

Any form of tobacco use or alcohol use was considered as a risk factor. Overweight was defined as body mass index (BMI) of more than or equal to 23 kg/m2 and obesity as ≥25 kg/m2.[8] Abdominal obesity was defined as a waist circumference of ≥85 cm in men and ≥80 cm in women.[8] Hypertension was defined as a systolic blood pressure of ≥140 mm of Hg or a diastolic blood pressure of ≥90 mm of Hg or the use of blood pressure lowering medications for hypertension.[9] Individuals with fasting plasma glucose of ≥126 mg/dl or on medications for high blood sugar were considered to have diabetes mellitus.[10].

Physical activity was classified into three groups: (1) inactive when the individual was inactive at work, transport, and leisure time; (2) vigorous when the individual had vigorous activity at work, transport, or leisure time; and (3) all other individuals were classified as having moderate activity.

Results

Demography

The total population surveyed consisted of 159 respondents, 100 (62.9%) females and 59 (37.1%) males. The average age of the respondents was 41.43 ± 13.2 years. The average number of years the respondents had spent in school was 2.19 ± 3.5. A subjective appraisal by the surveyors on the socioeconomic status of the families was done. A majority of the respondents (42.1%) were from middle class.

Behavior

Behavior of the respondents was assessed to understand the prevalence of risk behaviors for diabetes which included tobacco use (smoking and smokeless), alcohol use, diet, and physical activity. A majority (72.3%) of the respondents currently used some form of tobacco. For a majority of the respondents, their work involved moderate to vigorous intensity work (88.1%).

Hypertension

A majority of the respondents (58.5%) had their BP checked by a doctor or health care worker in the past. About 23.3% of the respondents had been told that they had raised blood pressure but only a third [12 (32.4%)] of them were on antihypertensive medications.

Knowledge about diabetes

None of the respondents were aware of anyone in their family having diabetes. Only 21.4% of them knew that a disease condition called diabetes existed, of which only 6.9% were aware of the symptoms of diabetes. Only 14 (8.8%) of the respondents had their blood sugars checked by a doctor, of which 3 were diagnosed to have diabetes. Of the three known diabetics, two were on antidiabetic medications, prescribed diabetic diet, and lifestyle modification, whereas the other one was following up with a traditional healer and was on herbal medicine for diabetes.

Anthropometry

A majority [80 (51.6%)] had a normal BMI, and 27 (17.4%) were obese and 31 (30%) were underweight. The average waist circumference of the male respondents was 79.96 ± 13.2 cm and that of females was 78.33 ± 12 cm. The average hip circumference of males was 85.76 ± 14.7 cm and that of females was 85.90 ±11.8 cm.

Blood glucose levels

In the population surveyed, the fasting blood glucose estimation was performed for 149 respondents (M 57, F 91) and post-meal glucose estimation was performed for 157 of the respondents (M 58, F99), out of which 20 (13.5%) had impaired fasting glucose, 7.4% had blood sugars in the diabetic range, and 13 (8.3%) had impaired postprandial glucose levels.

Discussion

The lack of awareness regarding diabetes in the study population is very evident with barely 21.4% of them being aware of the disease condition when compared to 50.8% reported in a study done amongst the rural South Indian population of Tamaka village by Muninarayana et al.[11] Studies have shown that the burden of overweight and obesity is much lower in the rural population when compared to the urban population,[6] which is consistent with our findings where only 28.38% were found to be obese or overweight using the revised cut-off values for normal anthropometric variables in Asian Indian adults.[8]

Our study also revealed that most participants had a very active lifestyle, which, with their racial background, could partly explain the lower prevalence of overweight and obesity when compared to a similar study conducted in Tripura.[6] The prevalence of smoking was found to be 49.7 and 72.3%, respectively, which was significantly greater when compared to the 19% alcohol consumption and 51% tobacco abuse in a study done by Gupta et al. in a rural population near Jaipur.[12] The major finding of our study was that 21.8% of the study participants had impaired glucose tolerance and 8.3% of them had blood glucose levels in the diabetic range, in contrast to other prevalence studies which showed only 2–3% of rural India to have diabetes.[1,2]The sample size being small is a significant limitation of our study. The rough climatic conditions and the difficult terrain made the data collection extremely difficult and had to be prematurely terminated in view of the early onset of monsoon. However, the results of our study have shown a higher than expected prevalence of diabetes and its risk factors with a very low level of awareness of the disease condition which has now motivated us to take up a largescale population-based survey to reassess the prevalence and awareness of diabetes in this area.

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